

APPENDIX C

ATTACHMENT 2

FEMP LOT MARKING AND COLOR CODING SYSTEM (RM-0005)



The FEMP has had a lot marking/identification system for materials and wastes since the earliest period of operation at the FEMP. The system in place since July, 1965 has relied on the designation of a 15-digit code for all materials and wastes by lot. Prior to that time, a shorter code was employed. The current system of coding is documented by FEMP Information Manual, IM-7004, FEMP Lot Marking and Color Coding System, October 1998 and FEMP Requirements Manual, RM-0005, FEMP Lot Marking and Color Coding System, dated December 27, 1999. The code takes the format PPPP-SSS-C-TTT-LLLL, where;

P is used to indicate a 4-digit alpha/numeric Production Order number

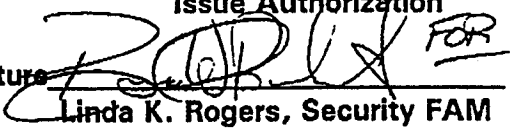
S indicates a 3-digit numeric Source Code,

C is used to indicate an alpha or numeric enrichment Class Code,

T indicates a 3-digit numeric Material Type or Material Description, and

L indicates a 4-digit Lot Sequence Number

The second reference (RM-0005) has been attached here for the reader's reference. Non-FEMP site designations (also used as Source Codes in the FEMP Lot Marking System) can be located in Appendix A and Appendix B tables of this report.

Fernald Environmental Management Project Fluor Daniel Fernald Inc. Functional Area Document Program	Requirements Manual Number: RM-0005 Effective Date: 12/27/1999 Revision No. 9
	UDC No. 1 UDC Effective Date: 12/29/99
FEMP LOT MARKING AND COLOR CODING SYSTEM	
Page 1 of 58	
Issue Authorization Signature:  Linda K. Rogers, Security FAM	Supersedes: FMPC-2178 Date 12-29-99

SUBJECT EXPERT: Robert Giessler, x-5712

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1.0	INTRODUCTION.....	3
2.0	LOT MARKING SYSTEM.....	3
3.0	COLOR CODING SYSTEM.....	13
4.0	REFERENCES.....	15
5.0	FORMS.....	15

ATTACHMENTS

<u>ATTACHMENT</u>	<u>TITLE</u>	<u>PAGE</u>
1	FEMP Source or Origin Codes.....	16
2	Offsite and Miscellaneous Source Codes.....	32
3	Material Description Codes.....	41
4	Sequence Number Month/Year Cross-Reference	57

TABLES

INFORMATION
ONLY

<u>TABLE</u>	<u>TITLE</u>	<u>PAGE</u>
2.1	Class or Enrichment Codes - Alphabetic.....	6
2.2	Class or Enrichment Codes - Numeric	6
2.3	Class Codes by Material Categories	7
2.4	Material Description Codes by Residue and Product	8
3.1	Enriched Restricted Materials	13
3.2	Nuclear Material and Waste Drum Color Code Summary.....	14

RECORD OF ISSUE/REVISIONS

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	PCN NO.	REV. NO.	DESCRIPTION
N/A	08/23/91		0	Original issue of RM-0005 supersedes Internal Special FMPC-2178, dated 7/1/89.
N/A	11/27/91		1	Incorporation of T91-004, T91-005, T91-006, and T91-031 per Request No.s S92-034, -035, -036, and -037. Initiated by D. Dunaway.
N/A	06/05/92		2	Minor revision to updating source or origin codes in Chapter 4, per Request No. S92-076. Initiated by D. Dunaway.
N/A	05/05/93		3	Minor revision adding additional information to sections 1, 3, and 4 per Request No. S93-050. Initiated by D. Dunaway.
N/A	08/23/93		4	Minor revision reflecting additions and corrections per request No. S93-124. Initiated by D. Dunaway.
N/A	04/27/94		5	Minor revision incorporating SDCs per Request No. S94-012. Initiated by D. Dunaway.
N/A	03/17/95		6	Minor revision incorporating corrections dictated per request S94-183. Initiated by Don Dunaway.
N/A	12/02/96		7	Minor revision incorporating corrections dictated per request S94-183. Initiated by Don Dunaway.
N/A	04/03/98		8	Minor revision to incorporate PCNs and add Material Description Codes. General revision of document due to reformatting.
N/A	09/14/98	1	8	Minor editorial revision to add Source Code 786, Fly Ash Pile, to page 37. Initiated by Robert Giessl.
N/A	10/22/98	2	8	Editorial PCN to change Attachment number in 2.3.1 on Page 9 from A to 1 and to correct the sequence numbering on pages 1 and 2 of Attachment 1 on Pages 42 and 43. Initiated by Robert Giessl.
N/A	11/10/98	3	8	Editorial PCN to change the material description code on page 26 from "661 Soil Samples" to "661 Hazardous Soil Samples" and to add "662 Non-Hazardous Soil Samples". Initiated by Robert Giessl.
12/16/99	12/27/99		9	Minor revision incorporating corrections, PCNs, and Material Description Codes additions and clarifications. Initiated by Robert Giessl.
ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	UDC NO.	REV. NO.	DESCRIPTION
12-29-99	12-29-99	1	9	Page 11, step 2.6.2.1A, revised to correct reference for Attachment 2. Initiated by R. Giessl.

1.0 INTRODUCTION

The Fernald Environmental Management Project (FEMP) Lot Marking and Color Coding System is used at the FEMP to provide a means for the control and accountability of nuclear materials. Although FEMP is no longer a production facility, there is still a large amount of nuclear material stored at the Fernald site that requires control and accountability. The same system used for the identification of nuclear materials is now being applied to hazardous waste (i.e., Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TSCA) waste; mixed waste; low-level waste (LLW); stabilized LLW; and decontaminated waste from Fluor Daniel Fernald, Inc. (FDF) remediation activities. Control and accountability is required to satisfy U.S. Department of Energy (DOE) and Environmental Protection Agency (EPA) concerns. This requirement manual provides the information necessary to identify any container of material.

2.0 LOT MARKING SYSTEM

THE FEMP LOT MARK FIVE BASIC ELEMENTS

<u>Element</u>	<u>Thorium</u>	<u>Enriched, Depleted, and Normal Uranium</u>
1.0 Production Order (P.O.) or Materials Disposition Order (MDO) Number	None	4 digits
2.0 Origin or Source Code	3 digits	3 digits
3.0 Class or Enrichment Code combined with	1 digit	1 digit
4.0 Material Description Code	3 digits	3 digits
5.0 Lot or Sequence Number	<u>4 digits</u>	<u>4 digits</u>
Total Digits	11 digits	15 digits

- Elements 1.0, 2.0, 3.0, and 5.0 are alphanumeric (contain numbers, letters, or both).
- Element 4.0 is numbers only.
- Elements 3.0 and 4.0 may be combined into a four-character material type code when stenciled on containers.
- Elements 2.0, 3.0 and 5.0 are separated from their predecessors by hyphens or dashes.

2.1 Production Order Number (P.O.)/Materials Disposition Order Number (MDO)

2.1.1 This designation was historically assigned by the Production Scheduling Section to identify certain key production activities. It usually consisted of one letter followed by three digits (e.g., A500). In the lot marking system, it is always used in identification of enriched, depleted, and normal materials. Currently, Nuclear Materials Disposition assigns these numbers for material orders. Waste packaged specifically for shipment to the Nevada Test Site (NTS) may be marked with the PO Number N003 for uranium and N004 for thorium.

2.1.2 When enriched uranium materials of irregular percent U^{235} content, for which no Production Order is applicable, are received or generated, special designations are assigned as outlined in the following paragraphs:

2.1.2.1 "S", followed by three digits, indicates the onsite producing plant's best estimate of the highest U^{235} content processed over a particular campaign. It is used to identify residue materials generated from the processing of materials of irregular U^{235} levels in FEMP operations. Materials containing up to 9.99 percent U^{235} will be coded as S plus the 3 digit isotopic value. Materials containing 10.00 to 19.99 percent U^{235} will be coded with only the isotopic value (4 digits).

Or

"S", followed by three digits indicating the shipper's percent U^{235} to two decimal places, is used to identify receipts of unusual U^{235} levels.

2.1.2.2 For thorium lots, the PO Number can be a sequence number used to assign thorium analysis information to overpack boxes.

2.1.2.3 "W", followed by three digits, indicates the onsite generator's best estimate of the highest U^{235} content associated with nonrecoverable contaminated waste material.

2.1.2.4 "T", followed by three digits, indicates the generator's estimate of the highest U^{235} isotopic level associated with uranium materials mixed with thorium. These uranium materials have Th^{230} or Th^{232} as an isotope of concern.

2.1.2.5 "X", followed by three digits, as indicated in the summary below, designating a range of percent U^{235} , will be used to identify certain residues produced from the mixing of materials of regular production but differing U^{235} levels (all numbers are inclusive):

- A. X948 for 0.148 to 0.193 & 0.207 to 0.709
- B. X110, X111, X118 & X119 for 0.710 to 0.712
- C. X008 for 0.713 to 0.756
- D. X884 for 0.757 to 0.853
- E. X500 for 0.867 to 0.940
- F. X888 for 0.954 to 1.243
- G. X767 for 1.257 to 1.593
- H. X911 for 1.607 to 2.093

- 2.1.2.6 "P", followed by three digits, indicates the onsite producing plant's estimate of the highest isotopic associated with uranium products or residues containing trace quantities of plutonium requiring special handling.
- 2.1.2.7 "R", followed by three digits, indicates the onsite producing plant's estimate of the highest isotopic associated with uranium products or residues containing RCRA mixed hazardous materials requiring special handling.
- 2.1.2.8 "H", followed by three zeros, indicates non-radioactive hazardous (both RCRA and non-RCRA) materials. Uranium levels will be no larger than background, and no isotopics will be associated with these materials.
- 2.1.2.9 "F", followed by three zeros, indicates decontaminated or uncontaminated material for "free release." Uranium levels will be no larger than background, and no isotopics will be associated with these materials.

2.2 Origin or Source Code

- 2.2.1 This is a three-digit code with a block of 100 numbers assigned to each plant, as indicated in the following table. The plants are divided into sub-areas with subordinate blocks of numbers representing each sub-area.

000-099	Reserved for future needs	500-599	Plant 5
100-199	Plant 1	600-699	Plant 6
200-299	Plants 2 & 3	700-799	Misc. Facilities
300-399	Pilot Plant	800-899	Plant 8
400-499	Plant 4	900-999	Plant 9

For example, Plant 5 is assigned 500-599 and the Reduction Area in Plant 5 is assigned 510 to 529. Within the area, each operation or piece of equipment, which may generate a material for coding, is assigned a source number. In the Plant 5 Metal Reduction Area, the Rockwell furnaces are assigned 516 and the breakout area dust collectors 520. The intention is to provide a flexible system which can identify a particular item of equipment as a source, if needed, or to allow coding by general area or by plant if this is all that is required.

- 2.2.2 A current list describing FEMP Source or Origin codes is found in Attachment 1.
- 2.2.3 Offsite origin codes used in processing receipts from other nuclear facilities are alphabetically designated using the three-letter Reporting Identification Symbol (RIS) of the shipper. See discussion on special handling of external receipts in Section 2.6.2. and the list as Attachment 2.

2.3 Class or Enrichment Code

2.3.1 This code consists of one digit or letter designating the general class or enrichment into which the material falls. Those categories currently most important in our operations have been assigned a number or letter.

Table 2.1: CLASS OR ENRICHMENT CODES - ALPHABETIC

Code	Category	Detail	%U ²³⁵	Additive or Alloy
A	Normal	Alloy		Alloy
B	Enriched	Alloy	Varies	Alloy
C	Enriched		2.10	Other ¹
D	Depleted			Standard
G	Normal			Alloy 601
H	Enriched		0.947	Alloy 601
K	Environmental			
L	Enriched		0.947	Other ¹
M	Enriched		1.25	Alloy 601
N	Normal	Waste	0.710 to 0.712	None
P	Depleted	Waste	<0.710	None
T	Thorium			None
V	Enriched	Waste	>0.712	None
X	Enriched		Other ¹	Other ¹

¹ not specified. Refer to P.O. for U²³⁵ or additive level.

NOTE: Letters I, O, and S will not be used.

Table 2.2: CLASS OR ENRICHMENT CODES - NUMERIC

Code	Category	Detail	%U ²³⁵	Additive or Alloy Level
1	Normal	Recycle	0.710 to 0.712	Std
2	Enriched		Varies	None
3	Enriched		1.10	Std
4	Enriched		1.25	Std
5	Enriched		0.947	Std
6				
7	Enriched		Varies	None
8	Enriched	Sweetener	0.86	Std
9	Enriched		2.10	Alloy 601
0	Enriched		Other ¹	Std

¹ not specified. Refer to P.O. for U²³⁵ or additive level.

2.3.2 The use of this code in combination with the Material Description Code makes it possible to assign the same material description code to similar materials regardless of their class, enrichment or special nature.

2.3.3 For ready reference, a table of class codes arranged by material categories, %U²³⁵ and additive or alloy levels is also included below.

Table 2.3: CLASS CODES BY MATERIAL CATEGORIES

Category	Detail	%U ²³⁵	Additive or Alloy Level				
			None	Std	601 ²	Other ^{2,3}	Alloy ⁴
Depleted				D			
Depleted	Waste	<0.710	P				
Normal	Waste	0.710 to 0.712	N				
Enriched	Waste	>0.712	V				
Enriched		0.86		8			
Enriched		0.947		5	H	L	
Enriched		1.10		3			
Enriched		1.250		4	M		
Enriched		2.10			9	C	
Enriched	Alloy	Other ¹		O		X	B
Enriched	Recycle Tails	Various	2				
Enriched	Sweetener	Various	7				
Thorium			T				

¹Not specified. Refer to P.O. for U²³⁵ or additive level.

²Properly applied to only material, which has actually achieved this additive level; not appropriate for UO₃, UF₄, or derbies.

³Any additive level other than "Standard" or Alloy 601; refer to P.O. or I.P.O. (Interplant Production Order) for details.

⁴Materials, ordinarily from offsite, containing a concentration of alloying materials usually far above additive (ppm) levels.

2.4 Material Description Code

2.4.1 The Material Description Code is a three-digit code, subdivided into residue and product categories as indicated in the following Table. Descriptions apply to both uranium and thorium materials unless otherwise specified.

Table 2.4: MATERIAL DESCRIPTION CODES BY RESIDUE AND PRODUCT

Residues and Products	Code
Low Grade Residues	000-099
High Grade Residues	100-149
Refinery Feeds	150-199
Intermediate Products	200-299
Remelt Feeds	300-399
Casting Products	400-449
Rolling and Extrusion Products	450-499
Machining Products	500-599
Environmental Project Materials and Sample Disposition Activities	600-699

2.4.2 Material descriptions are set up to be general, with the Class and Source Codes aiding in the specific identification of the material. A complete list of all Material Description Codes currently assigned will be found in Attachment 3.0.

2.4.3 Material Types that are potentially pyrophoric and/or gas generating as listed in 20-C-903, "Guidelines for the Packaging, Movement, and Storage of Pyrophoric Materials," and/or WM:PKGG-T-0006, "Handling of Explosive and Over-Pressurized Containers" are identified in Attachment 3.0 with "*pyrophoric*" and "*gas/vent*" respectively.

2.4.4 The one-digit or letter Class or Enrichment Code and the three-digit Material Description Code are combined into a four-character Material Type Code which is the basic unit of the FEMP Lot Marking system.

2.4.4.1 The low grade residue category (000-099) is intended to include all low uranium or thorium content residues and some higher grade residues which require extensive handling and processing before use as oxidation or refinery feed. The low-grade residues have been arranged in order of increasing quality. The lowest uranium or thorium content and lowest quality materials are designated by lower numbers and the high quality materials by higher numbers.

- 2.4.4.2 High-grade residues (100-149) are, in general, high uranium or thorium content residues which require some processing such as screening or oxidation. They correspond in many cases to the feed for Plant 8.
- 2.4.4.3 Refinery feeds (150-199) are materials suitable for introduction into the refinery without further processing.
- 2.4.4.4 The intermediate product category (200-299) includes products involved in converting refinery feed to metal. It also includes recycle metal that requires some pretreatment such as sawing or pickling before remelting.
- 2.4.4.5 Remelt feeds (300-399) are materials ready for remelt without further treatment.
- 2.4.4.6 Casting products (400-449), rolling and extrusion products (450-499), and machining products (500-510) are the products from these operations.
- 2.4.4.7 Environmental Project Materials (600-699) are materials such as non-contaminated soil and rocks or non-radioactive RCRA materials generated from projects.

2.5 Lot or Sequence Number

2.5.1 The Lot or Sequence Number is a four-digit number that is used to identify consecutive lots of specific material in sequence when more than one lot is produced per month. When not more than one lot is produced per month, the lot sequence number indicates the consecutive month of production starting with January 1962 as lot 0001. October 1991 is lot 0358. Attachment 4 cross-references the month and year with the Sequence Number.

2.5.2 To identify the category of trash, the lot or sequence number should include the product month number (May 1989 = 329), preceded by a numeric code that represents the category of 003 material. The categories are:

- | | |
|------------------------------|--|
| 1 - Glass | 6 - Contaminated Burnables |
| 2 - Rubber Hose | 7 - Oily Rags, Air Filters and Gaskets |
| 3 - Plastic | 8 - Floor Sweepings |
| 4 - Metal | 9 - Other - Stencil type of trash on container |
| 5 - Concrete, Ceramics, Soil | A - ISO container or Metal Box |

2.6 Additional Information

2.6.1 Lot Marking Examples:

The preceding sections of this discussion have been generalized to explain the system. The following examples are offered to illustrate the application of the general system structure in developing lot markings to identify specific material produced at the FEMP. Marking of material received from offsite is discussed in subsequent paragraphs.

Example 1 (Normal) H110 - 263 - 1200 - 0406

H110	Applicable to P.O. H110
263	Produced in Plant 2/3 (Refinery), emigration System North Side Packaging
1	"Normal" Uranium
200	UO ₃ , Product
0406	Lot Sequence Number (indicates October 1995)

Example 2 (Enriched) W095 - 817 - V069 - 0418

W095	Applicable to waste (0.95%, U ²³⁵)
817	Produced in Plant 8, Oliver Filter
V	0.95%, U ²³⁵ Enriched Uranium
069	Wet Sump Cake, Non-Oily, Non-Halide
0418	Lot Sequence Number (indicates October 1996)

Example 3 (Thorium) 380 - T069 - 0126

380	Produced in Pilot Plant Sump Area
T	Thorium
069	Wet Sump Cake, Non-Oily, Non-Halide
0126	Lot Sequence (Indicates June 1972)

Example 4 (Depleted) R020 - 655 - P039 - 0409

R020	Applicable to Mixed Depleted Waste (0.20%, U ²³⁵)
655	Produced in Plant 6, Water Treatment Area
P	Depleted Uranium
039	Oily Sludge
0409	Lot Sequence (Indicates January 1996)

Example 5 (Depleted) W020 - 501 - P003 - 6329

W020	Applicable to Waste (0.20% U ²³⁵)
501	Plant 5 Maintenance
P003	Depleted Nonrecoverable Trash - for storage or shipment for offsite burial
6	Contaminated Burnables
329	May 1989

2.6.2 Lot Marking of External Receipts:

2.6.2.1 Lot marking of material received at FEMP from offsite conforms in general to the format described in previous sections; however, certain exceptions should be noted:

A. The Source Code is the three-letter Reporting Identification Symbol (RIS) as illustrated in Attachment 2.

B. The Lot Sequence Number is the DOE Form 741 number assigned by the shipper in all cases except FTA Extrusions - Use 0000.

Example 6 (Depleted Receipt) H082 - FTA - D455 - 0000

H082	Applicable to P.O. H082
FTA	RMI Company, Inc. (Shipper)
D	Depleted Uranium
455	Mark 31 Extruded Tubes - Inner
0000	Indeterminate Lot Sequence Number

2.7 Solvent and Organic Chemical Names to be Stenciled on Containers

The following is a list of correct chemical names of organic solvents and chemicals that have been brought onsite and need to be stenciled on the container of that organic chemical or solvent.

Acetone	Ethyl ether
Acetonitrile	P Heptachlor (and its hydroxide)
Agitene	P Hexachlorobenzene
Benzene	Hexachlorobutadiene
n-Butyl alcohol	Hexachloroethane
Carbon disulfide	Isobutanol
Carbon tetrachloride	P Lindane
Chlorinated fluorocarbons	Methanol
P Chlorobenzene	P Methoxychlor
P Chlordane	Methyl ethyl ketone (2-Butanone)
Chloroform	Methyl isobutyl ketone
m-Cresol	Methylene chloride
o-Cresol	Nitrobenzene
p-Cresol	2-Nitropropane
Cresols	P Pentachlorophenol
Cresylic Acid	Phenol
(Cresols plus phenols)	Pyridine
Cyclohexane	Tetrachloroethylene
Cyclohexanone	Toluene
P 2, 4-D	P Toxaphene
P o-Dichlorobenzene	P 2, 4, 5-TP acid Silvex
P 1, 4-Dichlorobenzene	1, 1, 1-Trichloroethane
1, 2-Dichloroethane	1, 1, 2-trichloroethane
1, 1-Dichloroethylene	Trichloroethylene
2, 4-Dinitrotoluene	Trichlorofluoromethane
1, 4-dioxane	P 2, 4, 5-Trichlorophenol
P Endrin	P 2, 4, 6-Trichlorophenol
2-Ethoxyethanol	Vinyl chloride
Ethyl acetate	Xylene
Ethyl benzene	1, 1, 2-Trichloro-1, 2, 2-tifluoroethane

NOTE: P = Pesticide

3.0 COLOR CODING SYSTEM

- 3.1 In conjunction with the lot marking system for identifying nuclear materials, color-coding is applied for a quick visual identification of Enriched Restricted Material (ERM). Enriched Restricted Materials are defined in the following Table 3.1:

Table 3.1: ENRICHED RESTRICTED MATERIALS

Material Type	Limit
<u>Uranium Metals and UO_2 Rods/Pellets</u> (e.g., cores, chips, samples, turnings, rods, billets)	> 0.712 wt. % U^{235}
<u>Uranium Bearing Compounds and Residues</u> (e.g., UF_4 , UO_2 , U_3O_8 , UO_3 , UNH, and materials with high uranium content as determined by NCS)	> 1.00 wt. % U^{235}
<u>Homogeneous Mixtures of Uranium Bearing Materials</u> (e.g., solutions, materials contaminated with uranium compounds and residues, sludges, sump cakes, materials with high uranium content as determined by NCS)	> 1.00 wt. % U^{235} and > safe concentration for given enrichment as determined by NCS

NOTE: Contact Nuclear Criticality Safety (NCS) with questions regarding enriched restricted materials.

- 3.2 Nuclear Criticality Safety (NCS) Staff members will determine which materials are to be controlled as enriched restricted. NCS staff members can also be contacted with questions regarding enriched restricted materials or the classification of any material in question. Refer to procedures WM:MVMT-T-0001, *Moving Enriched Restricted Nuclear Material Within the Same Material Balance Area (MBA)*, and WM:MVMT-T-0002, *Moving Enriched Restricted Nuclear Material Between Material Balance Areas (MBAs)* for additional instructions on the handling of enriched restricted uranium-bearing materials.
- 3.3 Enriched Restricted Material is packaged in red colored containers or in containers identified by red-white target cards. Exceptions to the red identification may occur since paint has a tendency to fade with time and red containers which have faded to orange or yellow are permitted and do not require re-painting. In addition, containers used to package enriched restricted uranium-bearing materials for off-site shipment may be color-coded as requested or required by the customer or the Department of Transportation (DOT). These containers will be properly marked or stored in a designated and posted storage area.
- 3.4 Red-White target cards are also used for enriched uranium metal on skids, hoppers, dollies, metal pieces not in containers, boxes and major components of process

- 3.5 SWIFTS will specifically identify a material as ERM with a "Y" in the ERM field. A field for Nuclear Criticality Safety Comments is also provided.
- 3.6 White and black drums and black drums with a narrow stripe around the circumference above the gross, tare and net weight information were used in the past for visual identification of materials. These packaging practices were no longer required after the site was designated for remediation. Other than the red color coding for ERM, the color of the container as a primary identifier may be unreliable for identifying the contents of the container. The lot codes should always be used for the identification of materials.
- 3.7 Although adherence to color coding other than red for ERM is not currently required for waste packages, it was often followed. For this reason, the following Table 3.2 is provided to indicate the color code when applied.

Table 3.2: NUCLEAR MATERIAL AND WASTE DRUM COLOR CODE SUMMARY

Material Type	U^{235} Isotopic Class	Fissile Category	Container Color	Stripe Color
Uranium Metal	Enriched	Restricted	Red	None
	Normal	Unrestricted	Black	Yellow
	Depleted			Green
Uranium Compounds and Residues	Enriched Greater Than 1 wt. % U^{235} with sufficient total uranium	Restricted	Red	None
	Enriched Less Than or equal to 1 wt. % U^{235}	Unrestricted	Black	Red
	Normal	Unrestricted		Yellow
	Depleted	Unrestricted		Green
Thorium Waste	---	Unrestricted	Black/White	Blue
Homogeneous Mixtures	> 1.00 wt. % U^{235} and > safe concentration for given enrichment as determined by NCS	Restricted	Red	None
RCRA and TSCA Waste	All	As Designated	Black	None

4.0 REFERENCES

- 4.1 20-C-903, "Guidelines for the Packaging, Movement, and Storage of Pyrophoric Materials,"
- 4.2 WM:MVMT-T-0001, Moving Enriched Restricted Nuclear Material Within the Same Material Balance Area (MBA)
- 4.3 WM:MVMT-T-0002, Moving Enriched Restricted Nuclear Material Between Material Balance Areas (MBAs)
- 4.4 WM:PKGG-T-0006, "Handling of Explosive and Over-Pressurized Containers"

5.0 FORMS

- 5.1 DOE Form 741, Nuclear Material Transaction Report

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 1 of 16)

PLANT 1 CODES

- 100 PLANT 1 GENERAL
- 101 PLANT 1 MAINTENANCE
- 102 MAINTENANCE SHOP (RCRA MATERIALS)
- 103 OIL STORAGE AREA (RCRA & TSCA)
- 105 PLANT 1 CONSTRUCTION WASTE
- 107 SOURCE UNKNOWN
- 110 PLANT 1 MILLING
- 111 DRUM DUMPER
- 112 TITAN MILL
- 113 DUST COLLECTOR NUMBER 64
- 114 DUST COLLECTOR NUMBER 76
- 115 THREE PHASE GALIGHIER SAMPLER
- 116 HOPPER OR DRUM FILLING STATION
- 117 HOFFMAN VACUUM
- 118 SAFE GEOMETRY DIGESTION
- 119 FITZ MILL
- 120 PLANT 1 STILL
- 121 DRUM SIPHON
- 122 STILL TANK
- 123 WATER DRUMMING
- 124 RECLAIMED FLUID DRUMMING
- 130 PLANT 1 DRUM RECONDITIONING
- 131 SHOT SCREEN
- 132 WHEELABRATOR SHOT BLAST UNIT
- 133 DRUM ROLLER
- 134 PANGBORN DUST COLLECTOR

- 136 DRUM DRYER

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 2 of 16)

PLANT 1 CODES (Continued)

- 137 DRUM BALER
- 140 PLANT 1 SAMPLING
- 141 SMALL SHEATHED AUGER
- 142 WHEELABRATOR DUST COLLECTOR
- 143 LARGE SHEATHED AUGER
- 144 PIPE SAMPLER
- 145 SLY DUST COLLECTOR
- 150 COPPER SHREDDER
- 151 COPPER PILE
- 175 PLANT 1 SOIL REMOVAL PROJECT
- 176 PLANT 1 SOIL TREATABILITY PROJECT

PLANTS 2 AND 3 CODES

- 200 PLANTS 2 AND 3 GENERAL
- 201 PLANTS 2 AND 3 MAINTENANCE
- 202 MAINTENANCE SHOP (RCRA MATERIALS)
- 203 OIL STORAGE AREA (RCRA & TSCA)
- 210 PLANT 2 DIGESTION
- 211 SOUTH SIDE DIGESTORS
- 212 NORTH SIDE DIGESTORS
- 213 TURNER-HAWES DUST COLLECTOR
- 214 DAY-HOFFMAN DUST COLLECTOR
- 215 SLY DUST COLLECTOR
- 216 SPARKLER FILTER
- 220 METAL DISSOLVER
- 221 OLIVER FILTER
- 222 METAL DISSOLVER GRATE
- 225 EXTRACTION
- 226 SOUTH SIDE EXTRACTION COLUMN LINE

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 3 of 16)

PLANTS 2 AND 3 CODES (Continued)

227 NORTH SIDE EXTRACTION COLUMN LINE
228 MIXER-SETTLER
230 SOLVENT TREATMENT
235 HOT RAFFINATE BUILDING
236 FILTERS
240 TRASH BALER AND KELLY INCINERATOR (WEST AREA)
245 REFINERY SUMP SYSTEM
246 DORR THICKENERS
247 FILTERS
250 RAFFINATE EVAPORATORS
255 ABSORBERS
256 PLANT COLUMN ABSORBERS
260 DENITRATION SYSTEM
261 SCRUBBER SYSTEM
262 SOUTH SIDE PACKAGING
263 NORTH SIDE PACKAGING
267 SAFE GEOMETRY EVAPORATOR CALCINER
268 PULLMAN VACMOBILE
270 DRUM DIGESTION
271 CARTRIDGE FILTER
272 PLATE AND FRAME FILTER

PILOT PLANT CODES

300 PILOT PLANT GENERAL
301 PILOT PLANT MAINTENANCE
302 MAINTENANCE SHOP (RCRA MATERIALS)
303 OIL STORAGE AREA (RCRA & TSCA)
310 GREEN SALT PRODUCTION

312 REACTOR NUMBER 2

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 4 of 16)

PILOT PLANT CODES (Continued)

- 313 DUST COLLECTORS
- 314 VACUUM – PORTABLE
- 315 AUTOCLAVE
- 316 COLD TRAP

METAL REDUCTION PILOT PLANT

- 321 SLY DUST COLLECTOR
- 322 HOFFMAN VACUUM
- 323 ROCKWELL FURNACES
- 324 BREAKOUT STATION
- 330 DERBY SHOT BLASTING
- 331 PANGBORN ROTO-BLAST UNIT
- 332 SPENCER VACUUM
- 333 EAST WHEELABRATOR DUST COLLECTOR
- 334 DUCLONE CYCLONE
- 335 SHOT PRODUCTION UNIT
- 336 SHOT TANK
- 340 PILOT PLANT REMELT AND CASTING
- 341 REMELT FURNACE
- 343 CRUCIBLE BURNOUT
- 345 SAWS
- 346 WEST WHEELABRATOR DUST COLLECTOR
- 347 HOFFMAN VACUUM
- 350 PILOT PLANT HEAT TREATING
- 351 SALT BATH
- 352 WATER QUENCH
- 353 OIL QUENCH
- 355 PILOT PLANT METAL DISSOLVING

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 5 of 16)

METAL REDUCTION PILOT PLANT (Continued)

- 356 HNO₃ PICKLING OR DECOPPERING
- 357 HF OR HCl DISSOLVER
- 358 FILTER
- 359 NEUTRALIZER
- 360 PILOT PLANT AUXILIARY EQUIPMENT
- 361 PRECIPITATOR
- 362 FILTER
- 364 TRAY DRYER-THORIUM
- 365 PILOT PLANT OXIDIZING
- 366 SETTLING TABLE
- 367 OXIDATION FURNACE
- 368 AIR FILTER
- 369 S&W GLO-BAR FURNACE
- 370 PILOT PLANT MILLING
- 371 JAW CRUSHERS
- 372 BALL MILL-THORIUM
- 375 PILOT PLANT SOLVENT EXTRACTION
- 376 SIX-INCH EXTRACTION COLUMN
- 377 BOILDOWN TANKS

- 378 TWO-INCH EXTRACTION COLUMN
- 380 PILOT PLANT SUMP
- 381 SUMP CATCH BASIN
- 382 PRECIPITATOR
- 383 UNCONTAMINATED SUMP

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 6 of 16)

PLANT 4 CODES

400 PLANT 4 GENERAL
401 PLANT 4 MAINTENANCE
402 MAINTENANCE SHOP (RCRA MATERIALS)
403 OIL STORAGE AREA (RCRA & TSCA)
407 BANK 7
408 BANK 8
409 BANK 9
410 TANK FARM
411 PLANT 4 SAMPLING
420 DUST COLLECTORS - GENERAL
421 DUST COLLECTOR G4-1
422 DUST COLLECTOR G4-2
423 DUST COLLECTOR G4-15
424 DUST COLLECTOR G4-4
425 DUST COLLECTOR G4-5
426 DUST COLLECTOR G4-6
427 DUST COLLECTOR G4-7
428 DUST COLLECTOR G4-8
429 DUST COLLECTOR G4-9
430 DUST COLLECTOR G4-10
431 DUST COLLECTOR G4-11
432 DUST COLLECTOR G4-12
433 DUST COLLECTOR G4-13
434 DUST COLLECTOR G4-14
435 PLANT 4 SUMP OR G4-15
440 PACKAGING STATION - GENERAL
441 EAST (NO. 1) PACKAGING STATION
442 WEST (NO. 2) PACKAGING STATION

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 7 of 16)

PLANT 4 CODES (continued)

443 SOUTHWEST (NO. 3) PACKAGING STATION

PLANT 5 CODES

500 PLANT 5 GENERAL
501 PLANT 5 MAINTENANCE
502 MAINTENANCE SHOP (RCRA MATERIALS)
503 OIL STORAGE AREA (RCRA & TSCA)
504 PLANT 5 SAMPLING
505 PLANT 5 DUPLEX AREA
509 DRUM STORAGE PAD
510 METAL REDUCTION AREA
511 BLENDERS
512 BLENDING FILLING CAP AND LID AREA DUST COLLECTORS 249, 250, 251, 253
513 JOLTER AREA DUST COLLECTORS 247, 248
514 BOMB FILLING STATION
515 CAP AND LID
516 ROCKWELL FURNACES
517 COOLING TANKS
518 BREAKOUT STATIONS
519 EAST BREAKOUT AREA DUST COLLECTORS 101, 256
520 WEST BREAKOUT AREA DUST COLLECTORS 254, 267
521 DERBY QUENCH
522 SLAG CONVEYOR PIT
523 POT REAMING STATION
524 DUST COLLECTOR
530 CASTING AREA
531 REMELT FURNACES
532 SEPARATION BOOTH

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 8 of 16)

PLANT 5 CODES (Continued)

533 REMELT DUST COLLECTOR 258, 260
534 CRUCIBLE BURNOUT
535 CRUCIBLE BURNOUT DUST COLLECTOR 259, 261
536 SLY DUST COLLECTOR 100
537 GRAPHITE LATHE
538 HILCO OIL FILTER
539 BURNOUT AND MOLD TANKS
540 GRAPHITE BREAKUP STATIONS
545 SUMP TREATMENT AREA
550 SAW AREA
551 HACK SAW
552 NORTH CIRCULAR SAW
553 EAST CIRCULAR SAW
554 WEST CIRCULAR SAW
560 EAST SLAG PLANT
561 CRUSHER
562 COARSE SEPARATOR
563 FINE SEPARATOR
564 BIN 4: -20 MESH MAGNESIUM FLUORIDE
565 BIN 3: +20 MESH MAGNESIUM FLUORIDE
566 BIN 5, 6, 7, 8: MAGNESIUM FLUORIDE
570 WEST SLAG PLANT
571 CRUSHER
572 COARSE SEPARATOR
573 FINE SEPARATOR
574 -20 MESH MAGNESIUM FLUORIDE
575 +20 MESH MAGNESIUM FLUORIDE
576 GOOD LINER SOURCE

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 9 of 16)

PLANT 6 CODES

600 PLANT 6 GENERAL
601 PLANT 6 MAINTENANCE
602 MAINTENANCE SHOP (RCRA MATERIALS)
603 OIL STORAGE AREA (RCRA & TSCA)
605 PLANT 6 SAMPLING
610 ROLLING
611 INGOT FURNACE
612 BLOOMING MILL
613 CROP SHEAR OR GAG SHEAR
614 EQUALIZER FURNACE
615 CONTINUOUS MILL
616 FLYING SHEAR
617 COOLING BEDS
618 STRAIGHTENER
619 INSPECTION - ROD AREA
620 MACHINING
621 BLANKING ACMES
622 CROSS TRANSFERMATIC
623 CENTERLESS GRINDERS
624 DRILLING ACMES
625 SUNDSTRAND LATHES
626 HEALD BOREMATICS
627 TURRET LATHES
631 BARDONS AND OLIVER CUTOFF LATHE
632 CNC MACHINE
640 HEAT TREATING
642 SALT-OIL FURNACE
643 NU SAL FURNACE

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 10 of 16)

PLANT 6 CODES (Continued)

645 BRIQUETTING
646 CHIP CRUSHER
647 CHIP PICKLING TANKS
648 CHIP BRIQUETTING PRESS
650 DUST COLLECTORS
652 TURNER HAWES
655 WATER TREATMENT AREA
656 COLLECTION TANKS
657 PRECIPITATORS
658 FILTERS
659 HOFFMAN CLARIFIES
660 DEGREASING AND PICKLING
661 DERBY PICKLING
662 CORE PICKLING
663 REMELT METAL PICKLING
665 INSPECTION

MISCELLANEOUS FACILITIES CODES

700 WASTE MANAGEMENT
701 MULTIPLE SOURCES

703 OIL STORAGE AREA (RCRA & TSCA)
704 PLANT 7
705 CONSTRUCTION
706 PLANTWIDE EHSI - PHASE IV STORMWATER RUNOFF
707 BIODENITRIFICATION
708 KC-2, BUILDING 63
709 BUILDING 79

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 11 of 16)

MISCELLANEOUS FACILITIES CODES (Continued)

710 K-65 GENERAL - AREA 34
711 SILO #1 K-65
712 SILO #2 K-65
713 SILO #3 COLD-METAL OXIDE
714 SILO #4
715 BUILDING 64
716 BUILDING 65
717 BUILDING 65 - WEST PAD
718 BUILDING 67
719 BUILDING 68
720 VITRIFICATION PILOT PLANT
721 CHEMICAL PITS, GENERAL
722 CHEMICAL PIT NO. 1
723 CHEMICAL PIT NO. 2
724 CHEMICAL PIT NO. 3
725 CHEMICAL PIT NO. 4
726 CHEMICAL PIT NO. 5
727 CHEMICAL PIT NO. 6
728 SURGE LAGOONS
729 ENVIRONMENTAL MONITORING
730 LABORATORY GENERAL - BUILDING 15
731 OPERATIONS & ENGINEERING SERVICES
732 ANALYTICAL LABORATORY
733 ANALYTICAL LABORATORY HAZARDOUS WASTE
734 BIO-CHEMISTRY LABORATORY
735 SERVICE - BUILDING 11

737 HUMAN RESOURCES AND GUARD HOUSE - BUILDING 28

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 12 of 16)

MISCELLANEOUS FACILITIES CODES (Continued)

738 GARAGE (RCRA)
739 GARAGE OIL (RCRA)
740 ADMINISTRATION - BUILDING 14
741 GARAGE - BUILDING 31
742 DECONTAMINATION - BUILDING 69 AND 78
743 STORES-RECEIVING
744 TRUCK DOCK - PLANT 1
745 MAINTENANCE SECTION
746 MACHINE SHOP (RCRA)
747 MACHINE SHOP OIL STORAGE (RCRA & TSCA)
748 PAINT SHOP (RCRA)
749 INSTRUMENT SHOP (RCRA)
750 ELECTRIC SHOP
751 BUILDING 51, AWWT
752 AWWT SLURRY DEWATERING FACILITY, BUILDING 51B
753 IAWWT AND SPLIT BUILDING 18Q
755 SAFETY AND HEALTH - BUILDING 53
756 DOSIMETRY LABORATORY HAZARDOUS WASTE
759 BUILDING 3045 - LABORATORY MACHINE SHOP - RUST
760 ENGINEERING (NLO)
761 GENERAL SUMP
762 PLIBRICO INCINERATOR (NEAR SEWAGE PLANT)
763 OIL BURNER AT BOILER PLANT (OPERATED BY NLO)
764 GRAPHITE BURNER
765 WATER TREATMENT
766 SEWAGE TREATMENT
767 BOILER PLANT
768 BOILER PLANT (RCRA)

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 13 of 16)

MISCELLANEOUS FACILITIES CODES (Continued)

769 BOILER PLANT OIL STORAGE (RCRA)
770 HAZARDOUS WASTE STORAGE, NON-RAD
771 LEAD ACID BATTERY STORAGE, NON-RAD
775 LAB MAINTENANCE SHOP (RCRA)
776 LAB OIL STORAGE AREA (RCRA & TSCA)
777 RCRA PROJECTS
778 SAMPLE DISPOSITION
780 BLDG. 80
781 BLDG. 81
786 FLYASH PILE
790 ON-SITE DISPOSAL FACILITY
791 BUILDING 93A, NEW BOILERHOUSE
792 ONSITE LABORATORY
793 IT MAINTENANCE

PLANT 8 CODES

800 PLANT 8 GENERAL
801 PLANT 8 MAINTENANCE
802 MAINTENANCE SHOP (RCRA MATERIALS)
803 OIL STORAGE AREA (RCRA & TSCA)
804 SUPER COMPACTOR
805 DRUM WASHER
806 DRUM RECONDITIONING
810 WET-CHEMICAL SYSTEM
811 PRIMARY CALCINER
812 PLANT 8 MILLING
813 SUMP
814 DIGESTION
815 EIMCO FILTERS

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 14 of 16)

PLANT 8 CODES (Continued)

816 PRECIPITATION
817 OLIVER FILTER
818 CALCINATION
819 LEACH TANK
820 OXIDATION SYSTEM
821 CRUSHER
822 ROTEX SCREENING
823 MUFFLE FURNACE
824 BOX FURNACE
825 OXIDATION FURNACE NUMBER 1
826 ROTARY KILN - OLD UNIT
827 OXIDATION FURNACE NUMBER 2
828 PLANT 8 DUST COLLECTORS
830 ROTARY KILN FACILITY - NEW UNIT
836 THO₂ PLANT 8
845 HYDRAULIC SEPARATOR
852 BLENDING AND SCREENING OPERATION
853 OIL DECANTATION
854 DUST COLLECTOR & FILTER BAG WASHING
855 AIR SEPARATOR
856 HAND SORTING

PLANT 9 CODES

900 PLANT 9 GENERAL
901 PLANT 9 MAINTENANCE
902 MAINTENANCE SHOP (RCRA MATERIALS)
903 OIL STORAGE AREA (RCRA & TSCA)
905 MAWS PROJECT

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 15 of 16)

PLANT 9 CODES (Continued)

910 REDUCTION
911 JOLTERS
912 F MACHINE AND CAPPING
913 ROCKWELL FURNACES - MOLTEN SALT CLEANING
914 BREAKOUT STATION
915 TURNER-HAWES, HOFFMAN VACUUM SYSTEM
916 COOLING TANK
917 SPENCER PORTABLE VACUUM
920 CASTING
921 NPR FURNACE
922 CINCINNATI MILLING MACHINE
923 NPR SAWING
924 NPR PRIMARY HOFFMAN VACUUM UNIT
925 NPR BAG HOFFMAN VACUUM UNIT
926 NPR AAF DUST COLLECTOR
927 NPR AAF DUST COLLECTOR PRIMARY SEPARATOR
928 I&E FURNACE
929 I&E SEPARATING AND COOLING
930 I&E SAWING
931 I&E WHEELABRATOR DUST COLLECTOR
932 I&E PRIMARY HOFFMAN VACUUM UNIT
933 G9-NI 1035 DUST COLLECTOR
934 I&E HOFFMAN (BAG) VACUUM UNIT
935 EXTRUSION SAWING
940 MACHINING
941 GISHOLT TURRET LATHE
942 J+L AUTOMATIC LATHE
945 L+S DUOMATIC LATHE

ATTACHMENT 1
FEMP SOURCE OR ORIGIN CODES (Page 16 of 16)

PLANT 9 CODES (Continued)

949 J+L TURRET LATHE
951 LE BLOND RAPID BORER
953 WARNER AND SWASEY LATHE
954 MONARCH ENGINE LATHE
955 BRIQUETTING
956 CRUSHER AND METSO WASH
957 CHIP PICKLING AND RINSING
958 CHIP CENTRIFUGING
959 MAGNETIC SEPARATOR & BRIQUETTE PRESS
960 PICKLING
961 REMELT PICKLING AND RINSING
962 CORE DEGREASING AND PICKLING
965 SUMP LIQUOR PROCESSING
966 COLLECTION TANKS
967 PRECIPITATORS
968 FILTERS
970 HEAT TREATING
980 ZIRNLO PROCESS - GENERAL
981 HACKSAW
982 DEGREASER
983 DECOPPERING
984 DEZIRING
985 ACID FILTRATION
986 NEUTRALIZATION
987 NITRIC ACID PICKLE
988 KOH PICKLE

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 1 of 9)

SOURCE	NAME OF SHIPPER	PLANT	ADDRESS
AGT	General Electric Company	ANP Project	Cincinnati, Ohio
AIC	Atomics International	NA Aviation	Canoga Park, California
ALA	Sandia Corp.	Sandia Lab.	Albuquerque, New Mexico
ALD	Sandia Corp.	Sandia	Livermore, California
ALO	Dow Chemical	Rocky Flats	Golden, Colorado
ARF	Rockwell International	Rocky Flats	Golden, Colorado
ARM	IIT Research Inst.		Chicago, Illinois
ASA	Dow Chemical Company	Rocky Flats	Golden, Colorado
ASI	Advanced Sciences, Inc.		Fernald, Ohio; Oak Ridge, TN
ATA	Mason & Hanger	Silas Mason	Burlington, Iowa
ATT	Advanced Terra Testing		Denver, CO
AUA	Los Alamos Nat. Lab.		Los Alamos, New Mexico
AVA	Monsanto	Mound	Miamisburg, Ohio
AVB	EG&G	Mound	Miamisburg, Ohio
AWA	Mason & Hanger	Pantex	Amarillo, Texas
AXA	General Electric Company	Neutron	St. Petersburg, Florida
AYA	Mason & Hanger		San Antonio, Texas
AZA	Mason & Hanger		Fort Campbell, Kentucky
BBA	Bridgeport Brass Company	Extrusion Plant	Ashtabula, Ohio
BMI	Battelle Memorial Inst.		Columbus, Ohio
BWD	Martin Marietta	Gaseous Diff.	Oak Ridge, Tennessee
BXA	Martin Marietta	Gaseous Diff.	Portsmouth, Ohio
BYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
BZA	Brookhaven Laboratory		Upton, New York
CAA	USAEC	Chicago Office	Chicago, Illinois

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 2 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
CAE	Atomics International	NA Aviation	Canoga Park, California
CAF	Battelle Memorial Inst.		Columbus, Ohio
CAK	Ames Laboratory	Iowa State U.	Ames, Iowa
CBH	New Brunswick Laboratory	NBL	New Brunswick, New Jersey
CBJ	New Brunswick Laboratory		Argonne, Illinois
CCP	MIT		Cambridge, Mass.
CCS	Babcock and Wilcox Co.	Research Cen.	Lynchburg, Virginia
CDY	Whittaker Corporation	Nuclear Metals	West Concord, Mass.
CGE	General Electric Company	ANP Project	Cincinnati, Ohio
CKY	Union Carbide	Gaseous Diff.	Paducah, Kentucky
CNL	Chem-Nuclear Services	Laboratory	Greenville, South Carolina
COR	CORE	Laboratory	Casper, Wyoming
CTC	Clemson Technical Center	Laboratory	Anderson, South Carolina
CWA	Fermi Laboratory		Batavia, Illinois
CYT	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
CZA	Argonne National Labs		Argonne, Illinois
CZC	Argonne National Labs		Argonne, Illinois
C40	C4 = CRU4, 0 = 1st digit of five digit well drilling number		FEMP
C50	C5 = CRU5, 0 = 1st digit of five digit well drilling number		FEMP
C51	C5 = CRU5, 1 = 1st digit of five digit well drilling number		FEMP
C52	C5 = CRU5, 2 = 1st digit of five digit well drilling number		FEMP
DCC	Nuclear Fuel Services, Inc.	Davidson Chem.	Erwin, Tennessee
DCM	Datachem	Laboratory	Salt Lake City, Utah
DYA	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
DZA	Westinghouse Savannah River Co.	Savannah River	Aiken, South Carolina
EPI	Environmental Physics	Laboratory	Charleston, South Carolina

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 3 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
FAA	Oak Ridge Operations	USDOE	Oak Ridge, Tennessee
FAK	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey
FAL	University of Virginia		Charlottesville, Virginia
FAQ	National Lead	Albany	Albany, New York
FAV	Kerr-McGee Nuclear Product		Cushing, Oklahoma
FAX	Nuclear Fuel Services, Inc.	Davidson Chem	Erwin, Tennessee
FBA	General Electric Co.	Energy Systems	Evendale, Ohio
FBB	General Electric Co.mpany	NMPO	Idaho Falls, Idaho
FBE	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
FBX	Vitro Chemical Company		Chattanooga, Tennessee
FCZ	Tennessee Nuclear Spec.		Jonesboro, Tennessee
FTA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FUA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FVA	National Lead of Ohio	FMPC	Cincinnati, Ohio
FVB	General Atomic	Storage Fac.	Youngsville, N. Carolina
FVC	FERMCO*	FEMP**	Cincinnati, Ohio
FWA	Mallinckrodt Chemical Works		Weldon Spring, Missouri
FXA	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
FYA	Union Carbide	Gaseous Diff.	Paducah, Kentucky
FYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
FZA	Union Carbide	Gaseous Diff.	Oak Ridge, Tennessee
FZB	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
FZC	Union Carbide	ORNL	Oak Ridge, Tennessee

* WMCO - WEMCO, January 1986 - November 1992

** FMPC changed to FEMP August 1991

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 4 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
FZE	Martin Marietta	Gaseous Diff.	Oak Ridge, Tennessee
FZF	Martin Marietta	Y-12 Plant	Oak Ridge, Tennessee
FZG	Martin Marietta	ORNL	Oak Ridge, Tennessee
GAT	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
GDA	General Dynamics	General Atomic	San Diego, California
HGE	General Electric Company	Hanford	Richland, Washington
HRA	Rockwell Int.	Hanford	Richland, Washington
HUA	Westinghouse Hanford Co., HEDL	Hanford	Richland, Washington
HUD	Westinghouse Hanford Co., CPD	Hanford	Richland, Washington
HUE	Westinghouse Hanford Co., DRD	Hanford	Richland, Washington
HVA	Atlantic Richfield	Hanford	Richland, Washington
HWA	Isochem, Inc	Hanford	Richland, Washington
HXA	United Nuclear Corp. Inc.	Hanford	Richland, Washington
HYA	Battelle Memorial Inst., PNL	Hanford	Richland, Washington
HZA	General Electric Company	Hanford	Richland, Washington
ITA	ITAS	Laboratory	Earth City, Missouri
ITC	IT	Laboratory	Oak Ridge, Tennessee
JSA	Allied Chemical	Aerojet	Idaho Falls, Idaho
JSB	Aerojet Nuclear	Idaho Falls	Idaho Falls, Idaho
JSG	EG&G Idaho	Idaho Falls	Idaho Falls, Idaho
JWB	Idaho Nuclear Corp.	Idaho Falls	Idaho Falls, Idaho
JXI	Westinghouse Idaho Nuclear Co.	Idaho Falls	Idaho Falls, Idaho
KMG	Kerr-McGee Nuclear Products	Cimarron	Crescent, Oklahoma
KZA	Knolls Atomic Power Laboratory		Schenectady, New York
LAB	University of California	Lawrence Lab.	Livermore, California

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 5 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
LAE	Atomics International		Canoga Park, California
LAL	Rockwell International		Canoga Park, California
LAQ	Bureau of Mines		Albany, Oregon
LAW	(Gulf) General Atomic		San Diego, California
LAZ	General Electric Company	Nuclear Energy	San Jose, California
LLB	Sandia, Corp.	Livermore	Livermore, California
LZA	University of California	Berkeley	Berkeley, California
LZB	University of California	Livermore	Livermore, California
MAA	Worcester Polytechnic	USAEC	New York, New York
MAD	Pratt & Whitney Aircraft Div.	CANEL	Middletown, Connecticut
MAP	Aeroprojects, Inc.		West Chester, Pennsylvania
MAY	Nat. Bureau of Standards		Washington, D. C.
MBB	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
MBL	Martin Marietta	Nuclear Div.	Baltimore, Maryland
MBM	MIT		Cambridge, Mass.
MBN	Nuclear Metals Inc.	Textron	West Concord, Mass.
MBP	U. of Rochester		Rochester, New York
MBR	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBT	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBU	United Nuclear Corp.	Development	White Plains, New York
MBW	Babcock and Wilcox Company		Lynchburg, Virginia
MBY	Vitro Laboratories		West Orange, New Jersey
MCW	Mallinckrodt Chemical Works	Uranium Div.	Weldon Spring, Missouri
MCY	Westinghouse Electric Co.	NES	Pittsburgh, Pennsylvania
MIO	Nuclear Metals Inc.		West Concord, Mass.

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 6 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
MPW	Pratt & Whitney Aircraft Div	CANEL	Middletown, Connecticut
MSA	USAEC, NY Operations		New York, New York
NBL	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
NBX	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey
NCF	National Carbon Co.	Union Carbide	Fostoria, Ohio
NLA	National Lead	Albany	Albany, New York
NMC	Martin Marietta	Nuclear Div.	Middle River, Maryland
NME	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pennsylvania
OGE	General Electric Company	NM Propulsion	Cincinnati, Ohio
ORA	Oak Ridge Analytical Services		Oak Ridge, Tenn
ORF	EG&G	Rocky Flats	Golden, Colorado
PAB	Duquesne Light Co.	Shippingport	Shippingport, Pennsylvania
PAP	Babcock and Wilcox Co.		Apollo, Pennsylvania
PZA	Westinghouse Electric Co.	Bettis APL	West Mifflin, Pennsylvania
QAA	USAEC	Headquarters	Washington, D. C.
QTA	Quanterra	Laboratory	Earth City, Missouri
QTC	Quanterra	Laboratory	Oak Ridge, Tennessee
RBR	Brazil		
RCI	Rapid Commercialization Proj.	Fernald	Fernald, Ohio
RFW	Roy F. Weston		Lionville, PA
SAF	Mason & Hanger	Silas Mason	Fort Campbell, Kentucky
SBN	Mason & Hanger	Silas Mason	San Antonio, Texas
SBX	Monsanto	Mound	Miamisburg, Ohio
SEG	Scientific Ecology Group		Fernald, OH; Oak Ridge, TN
SRS	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
TCT	Tri City Testing		St. Louis, Missouri

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 7 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
TOA	K-65, Q-11		
UEG	ENFL Shipments		
VAC	National Research		Cambridge, Mass.
VCC	Vitro Chemical Company		Chattanooga, Tennessee
VDM	Envirocare		Salt Lake City, Utah
VXB	UNC Industries (Waste)	Hanford	Richland, Washington
WCP	Combustion Engineering Inc.	Naval Reactors	Windsor, Connecticut
WEB	Westinghouse Power Div.	Bettis APL	Pittsburgh, Pennsylvania
WST	Roy F. Weston Labs		Lionville, Pennsylvania
XHP	General Atomic	Storage Fac.	Youngsville, North Carolina
XWD	Lockheed	Laboratory	Las Vegas, Nevada
YAK	Department of Navy	NFEC	Alexandria, Virginia
YAM	Coast Guard Academy		New London, Connecticut
YAO	National Electric Coil		Louisville, Kentucky
YDE	Nuclear Fuel Services	West Valley	West Valley, New York
YEC	Kerr-McGee	Cimarron	Crescent, Oklahoma
YEF	Smithsonian Inst.	Hist. & Tech.	Washington, D. C.
YJL	Colgate University		Hamilton, New York
YLE	Westinghouse	Waltz Mill	Madison, Pennsylvania
YPF	U. of Alabama at Auburn		Auburn, Alabama
YQK	GSA Stockpile		Washington, D. C.
YST	TNS		Jonesboro, Tennessee
YQM	Frankfork Arsenal	DOD	Philadelphia, Pennsylvania
YUD	Exxon Nuclear	Hanford	Richland, Washington
YVX	Nuclear Metals		Concord, Mass.
ZCM	Bucknell University		Lewisburg, Pennsylvania
ZCY	Carnegie-Mellon U.		Pittsburgh, Pennsylvania

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 8 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZDB	Case Western Reserve U.		Cleveland, Ohio
ZDC	Catholic University		Washington, D.C.
ZDP	University of Cincinnati		Cincinnati, Ohio
ZDS	Clarke College		Dubuque, Iowa
ZDT	Clarkson University		Potsdam, New York
ZEF	Combustion Engineering		Windsor, Connecticut
ZFZ	Fairleigh Dickenson U.		Teaneck, New Jersey
ZIB	Scientific Ecology		Oak Ridge, Tennessee
ZKB	Iowa State University		Ames, Iowa
ZKL	Kansas State U.		Manhattan, Kansas
ZLD	Ledoux & Co.		Teaneck, New Jersey
ZLR	Louisiana Tech. U.		Ruston, Louisiana
ZLU	University of Louisville		Louisville, Kentucky
ZMH	Manhattan College		Riverdale, Bronx, New York
ZMK	Marquette University		Milwaukee, Wisconsin
ZMR	University of Maryland		College Park, Maryland
ZND	University of Minnesota		Minneapolis, Minnesota
ZNE	3M Company		St. Paul, Minnesota
ZNG	University of Mississippi		University, Mississippi
ZNX	National Lead	Albany	Albany, New York
ZOV	Manufacturing Sciences		
ZPG	University of Nevada		Reno, Nevada
ZQC	Northeastern University		Boston, Mass.
ZQG	Northwestern University		Chicago, Illinois
ZQM	Nuclear Fuel Services, Inc.		Erwin, Tennessee

ATTACHMENT 2
OFFSITE AND MISCELLANEOUS SOURCE CODES (Page 9 of 9)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZQN	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pennsylvania
ZQX	Ohio University		Athens, Ohio
ZSF	Pittsburgh University		Pittsburgh, Pennsylvania
ZSK	Princeton University		Princeton, New Jersey
ZST	Chamberlain Mfg.		Waterloo, Iowa
ZVF	Syracuse University		Syracuse, New York
ZVX	Texas Tech. University		Lubbock, Texas
ZWB	Toledo University		Toledo, Ohio
ZWY	Utah State University		Logan, Utah
ZXA	Vanderbilt University		Nashville, Tennessee
ZXC	U. of Virginia		Charlottesville, Virginia
ZXF	Villanova University		Villanova, Pennsylvania
ZXH	Virginia Polytechnic Inst.		Blacksburg, Virginia
ZXZ	Washington University		St. Louis, Missouri
ZYG	West Virginia Inst. of Tech.		Montgomery, West Virginia
ZYP	Westinghouse	Atomic Power	Cheswick, Pennsylvania
ZZA	University of Wisconsin		Madison, Wisconsin
ZZM	Yale University		New Haven, Connecticut